

TOP SECRET

25X1

**SHARING THE BENEFITS OF SDI**

25X1

**September, 1986**

TOP SECRET

25X1

TOP SECRET/ 

25X1

### KEY JUDGMENTS

1. Overall, the net effect of sharing would appear to be positive. While initially the idea of "sharing an SDI system" or "sharing the benefits of an SDI system" would appear to be impossible in view of the intense military and technological competition between the US and the USSR, on close examination, one finds that the idea, while subtle, has considerable merit. Certainly, one should not dismiss it out of hand without careful analysis and a weighing of potential gains and losses.
2. Sharing the benefits of SDI to eliminate the ballistic missile threat from the world would conceivably be the most valuable joint US-USSR project in history.
3. The benefits potentially shareable are numerous and include significantly more than the obvious primary value of mutual protection.
4. Some sharing benefits can be derived immediately. One need not wait until complex and expensive systems are deployed in the distant future, nor does one have to wait for the feasibility of such systems to be established before benefits can accrue.
5. Sharing can be achieved without transferring or compromising either side's perceived technological advantages. Further, one can reasonably imagine cases of technology transfer where the strategic benefits could outweigh the strategic losses.
6. Sharing need not involve lengthy and complex bilateral or multilateral negotiations and agreements. Scientific and technical information can be exchanged; operational sensor and control information can be exchanged; all within a framework of gradual, measured, confidence building, without the limitation of sovereign options or the compromise of essential security technology.
7. The USSR is not the only potential recipient of the benefits of a program for SDI research and development, or even a program for deployment. Various benefits are received worldwide.
8. Sharing can be a continual process whose pace and character should be modified in response to changing technological findings and changing domestic and international environments.
9. Sharing should be done at a substantially comparable rate with both our Allies and the USSR, with the former lest they feel we are deserting them and the latter lest they feel we are ganging up on them even more.
10. While there is a great deal of uncertainty concerning the specifics of an SDI system and its effectiveness, it is worth noting that most of the benefits discussed here are independent of the quality or effectiveness of the system.

 25X1

TOP SECRET

25X1

TOP SECRET 

25X1

## (A) INTRODUCTION

In an earlier paper ("Sharing SDI", also dated September 1986), the concept of sharing an SDI system was explored, taking as its starting point the 17 December 1985 letter of G. A. Keyworth to the President. Earlier notions of "sharing the SDI system," or "sharing the control of an SDI system," or "sharing the technology on which an SDI system could be based" have been enlarged to include the more general idea of "sharing the benefits." Discussions of benefit sharing have focused on such specifics as "sharing the fruits of the research,"; i.e., knowledge; "sharing the benefits of the technology,"; i.e., know-how; or "sharing the benefits of the system,"; i.e., operational value. It is the purpose of this paper to review these several "benefit" areas and to attempt to fit them into some logical structure.

To do this we ask, and suggest answers to, the following questions, each of which is addressed in subsequent sections:

1. What, more specifically, are the "benefits" to be shared, bearing in mind the various domains within which the word benefit is to be understood (Section B)?
2. What is the downside to sharing the benefits (Section C)?
3. Who are the constituencies who might receive the various benefits (Section D)?
4. How might the US implement the several kinds of benefit sharing and what is the minimum amount of sharing necessary to achieve the benefit (Section E)?
5. When could such sharing reasonably take place (Section F)?

Based on these thoughts, the Key Judgments have been developed.

## (B) WHAT ARE THE BENEFITS TO BE SHARED?

There would appear to be at least eleven generic classes of benefits that can accrue from an SDI program of research, development, and deployment. In priority order, these are:

1. Protection: A deployed SDI system will provide positive protection from both land-based and sea-based ballistic missile attacks. Beyond the obvious requirement that an SDI system be technically effective, there are perceptual dimensions of effectiveness that must also be recognized and dealt with. People (as distinct from national decisionmakers and defense elites) must understand how the system operates and must agree that it will work as

3  
TOP SECRET 

25X1

TOP SECRET 

25X1

expected should the need to use it arise; it must also be understood that the system will operate successfully under a variety of circumstances, some of which may be unanticipated when it was designed and deployed; and these understandings and agreements must be at a deep emotional level if the feeling of protection is to be sufficiently strong that a restructuring of strategic nuclear forces is to be effected.

2. Conflict control: Removing the likelihood of mutual nuclear annihilation will allow international disputes to be "settled" at lower levels of force. In essence, the uppermost ranges of the escalation ladder will have been removed (it is assumed that air-breather threats have been addressed by sovereign air defense systems.) There is, perhaps, an analogy to be drawn between this argument and that for encouraging motion along geological faults. By continually releasing energy in more frequent, small earthquakes, one avoids the severe damage from less frequent, major earthquakes.

An effective, global (in Keyworth's terms) SDI system would also eliminate the need for launch-under-attack-assessment (LUAA) response strategies. While there are various approaches to mitigating the risk of unwise LUAA responses (discussed in "Sharing SDI") involving less than full symmetric SDI deployments, such deployments do give added confidence to both sides.

3. Lowering international tensions: Related to, but separate from, the above is the benefit of decreasing international tension, anxiety, and suspicion. All the nations of the world are hostage to the wisdom, stability, and control of nuclear-power decisionmakers under stress. Deployment of an SDI system reduces the threat of nuclear war and, thus, can be expected to have salubrious effects across the board in international affairs. Clearly, other sources of superpower conflict and other domains of competition will exist. And while these are fully capable of causing incalculable human misery, those tensions deriving from the possibility of almost instantaneous nuclear annihilation will be reduced (to the extent that the SDI system is credibly effective.)

4. Improving the environment for international cooperation: A "joint" US/USSR SDI effort, along any of the lines outlined in the "Sharing SDI" paper, could provide a basis for further cooperative ventures in the next century. Such ideas are, of course, continually under discussion. These include such efforts as the Apollo-Soyuz Test Program (ASTP), cooperative programs in health and physical sciences, a joint Mars lander program, etc. Today, such useful efforts are pursued only to the extent that they do not compromise critical national security technology. In a world in which the US and the USSR engaged in joint security endeavors, such other programs could be increasingly productive. Indeed, in comparison to ASTP or a joint Mars lander, it is difficult to dispute that "sharing the benefits" of SDI (i.e., working toward the goal of making the world safe from ICBMs) is the single, most important joint US-USSR effort in history.

5. Arms control: One area where the US and the USSR have engaged in a joint security endeavor is that of arms control. The results to date have been--depending on one's expectations and viewpoint--impressive, modest, or

TOP SECRET <sup>4</sup> 

25X1

TOP SECRET [REDACTED]

25X1

disastrous. Questions of verification and compliance have caused many to question the degree to which the benefits have been symmetric. An SDI deployment, actual or potential, would shift the focus of arms control from offense to defense. Issues of verification, breakout, telemetry denial, levels of offensive forces (the "arms race"), and the phasing in of new offensive systems or new technologies would be replaced by a focus on defenses. But while levels and effectiveness of offensive forces are of major concern to the other side, questions of the quantity and quality of defenses are of major concern to one's own side.

6. Stabilizing the transition: A difficulty with a unilateral or grossly asymmetric deployment of effective strategic defenses is that it creates an incentive for a use-or-lose preemptive attack. On the other hand, a fully deployed, effective, global SDI which defends both sides represents a stable state, one that reverses the incentive to invest in offensive forces to achieve strategic superiority and substitutes, if you will, a race to achieve the best possible defensive deployment. Joint efforts in developing SDI systems should help to make the transition over the "potential barrier" from offensive investments to defensive investments.

Without sharing, if only one side is developing an SDI system, the other could feel that its offensive missiles were about to become useless. Thus, prior to this happening, the non-SDI side could decide to launch a preemptive attack while it could still be effective. Sharing an SDI system would eliminate this possibility.

Another concern raised by domestic opponents of SDI is the so-called "cost at the margin" argument, specifically that costly defensive deployments can be circumvented by much less costly offensive increments by the other side. While this is a valid issue, the idea presented here is that once the strategic focus shifts to effective defenses, resources from a nation's substantially fixed strategic budget are better allocated in a way that maintains parity in a strategic defense.

7. Strengthening alliances: A successful SDI deployment would impact the NATO and Warsaw Pact Alliances differently. Our NATO Allies would, of course, be unsettled by the apparent removal of the US strategic umbrella. But a successful SDI should, in principle, make possible an effective ATBM system. And by emphasizing the need for a defense of Europe without recourse to strategic nuclear conflict, the cohesiveness of the late 40's could return. To this writer, the logic of European political processes is frequently counter-intuitive. Nevertheless, there would appear to be no greater reason than at the present for the Western European nations or Japan to make a separate accommodation with a USSR. This is particularly true since the USSR's land forces would appear ever larger than they do now. The challenge will be for the US to sustain its position vis-a-vis the USSR, but in conventional rather than nuclear technology. There is no reason to believe that in such a conventional military technology arena, the US will be found wanting. Instead, there is the reasonable expectation that in the domain of "smart" precise weapons, advanced computer and space-based C<sup>3</sup>/I, and the like the US will appear a natural leader.

5  
TOP SECRET [REDACTED]

25X1

TOP SECRET

25X1

8. Intelligence access: As discussed in "Sharing SDI", a cooperative SDI program will provide many opportunities for enhanced access to the other side's technology enterprise by intelligence services. The suggestion made in the earlier paper is that the US will benefit more than will the USSR as a result of the closed nature of the USSR military establishment compared to the relatively open nature of that of the US. Of equal importance as the nature of the two systems is the degree to which each side attempts to exploit the new opportunity for access. One can be sure that the USSR will aggressively pursue all opportunities for increased access to the US technology enterprise. Thus, the US would have to go into a cooperative SDI venture with similar intentions, lest the net benefit accrue to the USSR. But there is no reason why it need be. Clearly, this is not a matter for public debate, yet the issue is of supreme importance if the West is not to strengthen the rope to hang itself.

9. Economic benefits: There are new business areas in the SDI arena that are of natural interest to US, Japanese, and European industry. There will be an "SDI market" that will create jobs, businesses, markets, and profits. While phrased in different economic terms, there will be comparable benefits for the USSR. Alternatively, it may be that a focus on SDI will diminish the resources the USSR can bring to bear on conventional military technology. Most of these impacts, positive and negative, will occur regardless of whether SDI is a cooperative or joint program, but the degree may well vary. In any event, these impacts constitute benefits to be weighed in the balance.

10. Technology development: Despite the anti-defense rhetoric of the domestic political opposition and the arguments of the economists that channeling technology resources into defense is economically inefficient, the demonstrable fact is that technological progress is rapid when stimulated by the needs of national security. There may or may not be direct non-military benefits of an SDI R&D program. (Although basic science always has broad applicability and science has ways of producing positive benefits in totally unexpected ways.) But there will be technology advances from an SDI R&D program, advances that while they may come in any event, will probably be delayed unless force-fed by such a program. These developments, such as in space technology, will also result in economic benefits and they will demonstrate the continued technological leadership by the West. Most of these benefits will occur, regardless of the degree to which the program is cooperative with the USSR. And it is unclear, as in the case of intelligence access, which side will benefit more.

11. Removal of uncertainty: The strategic nuclear balance is a critical determinant of national stature. The efficacy of defense factors directly into the current and future worth of each side's strategic offensive forces. Having raised the issue of new strategic defense technologies, until the question is resolved, there will be a potential instability in the relations of the superpowers with each other and in the relations of each superpower with its Allies. Absent reasonable grounds for judging SDI system feasibility, there will be continual concern that each nation's nuclear deterrent could be voided by an SDI deployment by the other. Clearly, if an SDI system is shown to be infeasible, the matter will be put to rest. And if

6  
TOP SECRET

25X1

an SDI system is feasible, each nation will know the facts and can react in whatever it judges to be in its own best interest.

(C) WHAT IS THE DOWNSIDE?

The focus of this paper, by its very subject, is to explore the positive side of the sharing equation. Thus, it tends to resemble an advocacy argument. There is, of course, the potential for risks to national security in the short-to-mid term as the net effect of positive and negative results from each sharing action undertaken come to fruition. For example, the effects on the NATO alliance could be negative, not positive, for a variety of reasons. Loss of technology (perhaps some of it critical) to the USSR could, and likely will, occur despite our best efforts to prevent it. The net balance of increased intelligence access for both sides could turn out to be detrimental to the US. And there could be adverse economic effects.

All this is to say that there is a downside risk, as there is in all important enterprises. The downside cannot be reasoned away but steps can be taken to minimize the risk. Clearly one would initiate any long term shift to a mutual reliance on defensive systems aware of the potential negatives. While these downside risks must be considered, we believe that at least for the most part, careful preparation will mitigate them. And it appears that, even taken in total, these downside risks are not sufficient to negate the potential benefits from sharing.

Analysis can provide some guidance in helping us understand the long-term policy effects of sharing the benefits of SDI. The work reported on here is continuing with emphasis on these longer term issues.

(D) WHO MIGHT SHARE IN THE BENEFITS?

The various benefits--real, potential, or hypothesized do not fall exclusively on the USSR and/or the US. Nor do they fall uniformly on the nations of the world. There would seem to be at least seven natural groupings or constituencies for the benefits of separate or joint SDI programs. While regional and internal subdivisions abound, the obvious groups at the national level would appear to be:

- |                  |   |
|------------------|---|
| 1. US Government | 5. USSR Allies                          |
| 2. US Populace   | 6. Non-aligned developed countries      |
| 3. USSR          | 7. Non-aligned underdeveloped countries |
| 4. US Allies     |   |

Table 1 suggests how each of the benefits outlined in Section B relate to the above constituencies. The US Government and US Populace are included as separate entries since different benefits accrue to each entity. Using Table 1, it is possible to begin to map out strategies for appealing to various national groups and interests.

TOP SECRET

25X1

Table 1

## Who Shares the Benefits?

	US Govt	US Populace	USSR	US Allies	USSR Allies	Non-aligned Dev	Under Dev
1. Protection	x	x	x	x	x		
2. Conflict control	x	x	x	x	x		
3. Lowering international tensions	x	x	x	x	x	x	x
4. Improving the environment for international cooperation	x	x	x				
5. Arms control	x		x				
6. Stabilizing the transition	x		x	x	x		
7. Strengthening alliances	x	x	x	x	x		
8. Intelligence access	x		x				
9. Economic benefits		x		x			
10. Technology development	x	x	x		x	x	
11. Removal of uncertainty	x		x				

TOP SECRET

25X1



TOP SECRET [REDACTED]

25X1

## (E) HOW CAN ONE IMPLEMENT BENEFIT SHARING?

Sharing is, by the definition of the word, at least a two-sided venture. And usually it requires some degree of cooperation or coordination between the parties involved. When the two parties are sovereign nations, completing these sharing arrangements is particularly difficult and complex because of what the economists would call "externalities": national sensitivities, precedent, prestige, and the like. Furthermore the natural concerns for quid pro quo, terms and conditions, and risks also enter into the scene.

One approach to sharing is open publication of laboratory research, theoretical studies, and field experiments and demonstrations (despite the propensity of the Soviets to discount US open source information as disinformation). There are, in essence, no negotiations, no agreements, and no consequent questions of verification and compliance. A variety of such sharing arrangements were discussed in "Sharing SDI".

At the opposite extreme from these unilateral or bilateral R&D (knowledge) sharing modes is the unilateral SDI benefit sharing that could derive from a US SDI deployment. Imagine the US were to develop and deploy an SDI system unilaterally, a system in which the US has complete and utter confidence. So much confidence, in fact, that the US phases out its ballistic missile strategic offensive forces as they reach technological obsolescences (or before). In such a case, the USSR automatically derives or shares the benefit of the US SDI system because the US no longer has strategic ballistic missiles that can threaten the USSR. The benefit accrues to the USSR without negotiation and without the compromise or transfer of US technology. To be sure, the USSR will have concerns about US deception, breakout, and long-term intentions. Nevertheless, the benefit is shared, however much it may be discounted by the USSR. This unilateral sharing approach, particularly if announced well in advance as a US fallback position if negotiations fail, also appears to have considerable near-term political benefit.

Bilateral and multilateral sharing is, of course, possible. Approaches to these were outlined in "Sharing SDI" and need not be repeated here. They include the exchange of scientific and technical information in measured amounts, joint research and demonstrations, and joint deployment and operation, including operational information sharing and exchange at various levels.

Finally, each nation can embark on a program of parallel but separate SDI programs involving research, development, or deployment with time-phased "milestones" at which they will pause and notify, or wait for some appropriate response by the other.

Theoretically, sharing the benefits of SDI, in its ultimate form is a concept that has been a part of the SDI program since its inception in 1983. It implies we are building, in effect, an astrodome to protect us from ballistic missiles and we will "give" one to the USSR also. However, it may

9  
TOP SECRET [REDACTED]

25X1

TOP SECRET

25X1

be possible to share the benefits in a manner short of providing a second "astrodome." We explore here lesser degrees of sharing the benefits of SDI.

In order to understand how much must be shared so as to achieve some of the benefits, we examine each of the potential benefits discussed in section B. These are discussed in terms of the minimum amount of sharing necessary to achieve the benefit. It is convenient to use the concepts for sharing delineated in the table in "Sharing SDI". That table is reproduced here as Table 2.

The potential benefits are:

1. Protection: This is perhaps the most difficult benefit to achieve. It clearly requires sharing system operation and likely system development. The same benefit could also be obtained if each side developed its own SDI or through the unilateral sharing concept described in detail above. The Keyworth concept of shared control would also help.
2. Conflict Control: Any of the concepts discussed in Table 2 helps perceptually in conflict control in that working together in any manner helps lessen the possibilities of escalation of conflict. However, to provide actual protection it is necessary for both sides to have an SDI available or to control one. Here the sharing of control appears to be the minimum sharing required.
3. Lowering Tensions: From the US standpoint, US tensions are lowered as soon as the US has its own SDI system. Likewise US tensions increase if only the USSR has an SDI system. Sharing sensor information or any of the items listed in Table 2 jointly help to a lesser extent. The unilateral sharing concept also resolves this problem.
4. Improving the environment for international cooperation: In the absence of other mitigating factors (such as the Daniloff case), international cooperation tends to build upon itself. Thus, doing any of the items in Table 2 provides this benefit. Further, providing the same benefit earlier is better than providing it later.
5. Arms Control: The arguments in the previous section for the most part apply here. Any movement towards more reliance on a defensive regime is beneficial. Thus, any of the items in the table provide this benefit.
6. Stabilizing the Transition: An agreement (in the arms control arena) to share the benefits (and consequent compliance with that agreement through transition) is all that is necessary to achieve this benefit. The sharing itself is not really necessary.
7. Strengthening alliances: Reaching agreement to bring the Western allies and Japan into the SDI R&D program would have probably the greatest positive effect in this area. The actual joint deployment and operation or sharing of control per Keyworth, or unilateral sharing, should also provide additional, incremental improvement.

10

TOP SECRET

25X1

TOP SECRET

25X1

TABLE 2

## Concepts for Sharing the Benefits of SDI

<u>Value Shared</u>	<u>When Possible</u>	<u>Concept</u>
Technology	Immediately, through system deployment. Continuing through deployment as the system is upgraded.	<ul style="list-style-type: none"> <li>o Open publication policy</li> <li>o Encourage attendance at scientific meetings</li> <li>o Bilateral or multi-lateral exchanges</li> <li>o Exchange of scientific workers for long or short periods</li> <li>o Provision of laboratory equipment</li> <li>o Joint use of facilities</li> <li>o Establishment of joint research programs</li> </ul>
Sensor Information	Now with current sovereign early warning and attack assessment sensors; later with experimental or deployed sensors	<ul style="list-style-type: none"> <li>o Exchange of sensor output</li> <li>o Exchange of attack assessment center output</li> <li>o Combinations of the above, with both sovereign or jointly operated sensors</li> </ul>
System Control	Now with current systems; later with experimental or deployed systems	<ul style="list-style-type: none"> <li>o Exchange of NCA decisions (hotline)</li> <li>o Interconnection of battle management computers</li> </ul>
System Development	After commitment to an SDI system	<ul style="list-style-type: none"> <li>o Design of an SDI system</li> <li>o Fabrication of an SDI system</li> <li>o Testing of an SDI system</li> </ul>
System Operation	After development and deployment of a system	<ul style="list-style-type: none"> <li>o Operation of an SDI system</li> </ul>

TOP SECRET

25X1

TOP SECRET

25X1

8. Intelligence Access: Any agreement with the USSR to trade information and/or people provides the US with potential new intelligence data and often access to even more.

25X1

9. Economic benefits: They begin during the R&D process. However, they really do not begin to accrue in significant amounts until actual fabrication of system components begins. Only small increases result from sharing in comparison to the economic benefits of building a US system.

10. Technology Development: Unlike the case with economic benefits, the major technological breakthroughs are likely to occur during the R&D phase. Here the addition of relatively different (albeit likely somewhat lagging) Soviet design and R&D concepts might add significantly to the overall increase in technology.

11. Removal of Uncertainty: While any of the sharing options in Table 2 would resolve this problem, the completion of the current US R&D program also will by itself. This sharing, per se, is not necessary to obtain this benefit.

These implementation modalities are summarized in Table 3 for each generic class of benefit.

#### (F) WHEN COULD BENEFIT SHARING OCCUR?

Some benefits, such as protection, can only accrue after the deployment of an SDI system and that, in turn, requires the completion of joint or sovereign R&D programs to establish feasibility and joint or sovereign development and deployment periods. Other benefits, such as lowering international tensions, possibly strengthening alliances, intelligence collection, and economic benefits derive sooner, if not immediately. And others, such as removing uncertainty, occur at intermediate times.

Table 3 also outlines how the various benefits are distributed in time and how they increase with the natural evolution of events. It is noteworthy that many of the benefits of sharing actually occur much before the majority of the sharing takes place. This is particularly true of the political benefits.

TOP SECRET

25X1

Table 3  
The How and When of SDI Sharing

<u>Benefit</u>	<u>Implementation of Benefit Sharing</u>	<u>Time Period to Realize Benefits</u>
1. Protection	<ul style="list-style-type: none"> <li>o deploy an SDI system, at least unilaterally by US               <ul style="list-style-type: none"> <li>- complete protection for the USSR will require a sovereign terminal defense</li> <li>- credibility of the system will require joint tests and demonstrations, both in the R&amp;D phase and during and after deployment</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>o deployment mid-late 90's</li> <li>- during R&amp;D late 80's-early 90's</li> </ul>
2. Conflict control	<ul style="list-style-type: none"> <li>o deploy an SDI system</li> </ul>	<ul style="list-style-type: none"> <li>o post mid-late 90's deployment</li> </ul>
3. Lowering international tensions	<ul style="list-style-type: none"> <li>o undertake joint R&amp;D actions to initiate the process (see "Sharing SDI")               <ul style="list-style-type: none"> <li>- international tensions should decrease continuously over the long term as strategic postures change</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>o immediately upon reaching domestic and international agreements to proceed               <ul style="list-style-type: none"> <li>- post deployment and for several decades thereafter</li> </ul> </li> </ul>
4. Improving the environment for international cooperation	<ul style="list-style-type: none"> <li>o undertake joint actions (see "Sharing SDI")</li> </ul>	<ul style="list-style-type: none"> <li>o immediately</li> </ul>
5. Arms control	<ul style="list-style-type: none"> <li>o reach agreement to pursue SDI R&amp;D in a manner consistent with current or new arms control agreements</li> </ul>	<ul style="list-style-type: none"> <li>o whenever agreement with the USSR on SDI is achieved; could be soon, or never</li> </ul>
6. Stabilizing the transition	<ul style="list-style-type: none"> <li>o agreement to share the benefits is all that is necessary to initiate               <ul style="list-style-type: none"> <li>- compliance needed to maintain credibility</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>o late 80's or whenever agreement can be reached               <ul style="list-style-type: none"> <li>- through SDI deployment</li> </ul> </li> </ul>

<u>Benefit</u>	<u>Implementation of Benefit Sharing</u>	<u>Time Period to Realize Benefits</u>
7. Strengthening alliances	o reach agreement to bring US allies into the R&D, both to assess its results as well as to share in the economic/ technological benefits	o this is already underway
8. Intelligence access	o reach agreement with USSR for exchange of information and people as a minimum; joint research and field experiments could follow later if deemed useful	o as soon as possible after reaching an agreement with the USSR; realistically would require at least a year to set up effective contacts
9. Economic benefits	o initiate R&D provided initial gains - benefits most from development and fabrication of hardware	o this is already underway - early-late 90's
10. Technology development	o initiate R&D	- this is already underway
11. Removal of uncertainty	o complete current R&D program to assess feasibility	o early 90's